

IN THE CLAIMS:

1. (currently amended) An information (recording and reproducing method) in which information is recorded by irradiating a recording track on a recording medium with an energy beam and thereby forming recording marks, said recording track being wobbling or deforming with a predetermined period, said information recording and/or reproducing method comprising the steps of:

wobbling or deforming said recording track with a predetermined period; ✓  
generating a recording clock from a signal obtained (by detecting the wobble or deformation of said recording track;)

~~generating~~ forming said recording marks in synchronism with said recording clock; and ✓

detecting pre-recorded information of control data on said recording medium; and ✓

setting a conversion multiplying factor between a period of the signal obtained by detecting said wobble or deformation and a period of said recording clock, based on said detected pre-recorded information ~~pre-recorded information of control data on said recording medium.~~

2. (currently amended) An information recording ~~and~~ and/or reproducing method according to claim 1, comprising the steps of:

making quantities of user data recorded per single sector equal irrespective of a value of the conversion multiplying factor used when generating said recording clock from said signal obtained by detecting said wobble or deformation; and

making a length of a buffer area preceding a head of a user data portion or a buffer area following a terminus portion of said user data portion longer as the conversion multiplying factor becomes higher.

3. (currently amended) An information recording ~~and~~ and/or reproducing method according to claim 2, comprising the step of keeping a physical length ranging from a head of said buffer area preceding said user data portion to a terminus portion of said buffer area following said user data portion at a nearly same length ~~without depending upon~~ independently of said conversion multiplying factor by changing the number of channel bits.

4. (currently amended) An information recording ~~and~~ and/or reproducing method according to claim 3, comprising the step of conducting recording over a length of said buffer area preceding said user data portion and/or a length of said buffer area following said user data portion in a control data zone of said recording medium beforehand.

5. (currently amended) An information recording and reproducing apparatus comprising:

an energy beam generator

a power adjusting mechanism for adjusting a power level of an energy beam generated by said energy beam generator;

holding mechanism capable of holding a recording medium;

moving mechanism for irradiating said recording medium with said energy beam and relatively moving said energy beam with respect to said recording medium; ~~and~~

a detector for detecting an energy beam reflected or transmitted in said information recording and reproducing apparatus, a recording track on said recording medium being wobbled or deformed with a predetermined period; ~~the wobble or deformation of said recording track being detected based upon a detection signal supplied from said energy beam detector, a recording clock being generated from a signal obtained by detecting the wobble or deformation, a power level of said energy beam being changed in synchronism with said recording clock, a conversion multiplying factor between a period of the signal obtained by detecting said wobble or deformation and a period of said recording clock being set based on pre-recorded information of control data on said recording medium.~~ ✓✓

a wobble or deformation detection circuit to detect the wobble or deformation of the recording track based on a detection signal supplied from the energy beam detector;

a recording clock formation circuit to generate a recording clock from a signal obtained by detecting the wobble or deformation, and a power level of the energy beam being changed in synchronism with said recording clock by the power adjusting mechanism; and

a frequency changer circuit to change a conversion multiplying factor between a period of the signal obtained by detecting said wobble or deformation and a period of said recording clock, based on pre-recorded information of control data on the recording medium.

Claims 6-8 (cancelled)

9. (currently amended) An information ~~recording and reproducing~~ method comprising the steps of:

irradiating a recording track on a recording medium with an energy beam;  
detecting an intensity of an energy beam reflected or transmitted by said recording medium, out of said energy beam with which said recording medium is irradiated;  
reproducing information recorded on said recording medium, from an intensity signal of said reflected or transmitted energy beam[[:]] , the recording track being wobbling or deforming with a predetermined period;  
~~wobbling or deforming said recording track with a predetermined period~~;  
generating a reproducing clock from a signal obtained by detecting the wobble or deformation of said recording track;  
discriminating reproduced data by taking said reproducing clock as a reference; ~~and~~  
detecting pre-recorded information of control data on said recording medium; and  
setting a conversion multiplying factor between a period of the signal obtained by detecting said wobble or deformation and a period of said reproducing clock, based on said pre-recorded information of control data on said recording medium.

10. (currently amended) An information ~~recording and reproducing~~ apparatus comprising:

an energy beam generator;  
a power adjusting mechanism for adjusting a power level of an energy beam generated by said energy beam generator;  
a holding mechanism capable of holding a recording medium;  
a moving mechanism for irradiating said recording medium with said energy beam and relatively moving said energy beam with respect to said recording medium; ~~and~~  
a detector for detecting an energy beam reflected or transmitted in said information ~~recording and reproducing apparatus, said recording track being wobbled or deformed with a predetermined period, a reproducing clock being generated from a signal obtained by detecting the wobble or deformation of said recording track, reproduced data being discriminated by taking said reproducing clock as a reference, a conversion multiplying factor between a period of the signal obtained by detecting said wobble or deformation and a period of said reproducing clock~~

being set based on pre-recorded information of control data on said recording medium recording ✓✓  
medium whose recording track is being wobbled or deformed with a predetermined period;

1  
A a clock generation circuit to generate a reproducing clock from a signal obtained by  
detecting the wobble or deformation of the recording track, and reproduced data being  
discriminated by taking said reproducing clock as a reference; and

a frequency changer circuit to change a conversion multiplying factor between a period  
of the signal obtained by detecting said wobble or deformation and a period of said reproducing  
clock, based on pre-recorded information of control data on the recording medium.

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